Architecture and Construction Career Cluster
Pre Tech Foundation Program
(CIP: PTF02)

Pre-Tech Foundation Program Description: (To be modified)
Prepare for careers in designing, planning, managing, building and maintaining building and the constructed environment. The Pre-Tech Foundation Program will center around construction of residential houses. Students will learn the care and safe use of both hand and power tools and develop skills in blueprint reading, carpentry, plumbing, and electrical circuits.

Vermont Approved Pre-Tech Foundational Program Competencies:

CORE Pre Tech Foundation Competencies
A Think Critically and Solve Problems
1. Solve problems and make decisions in work-related situations
2. Read for information and understanding
3. Use observation skills to analyze work-related situations
4. Apply mathematical processes
5. Apply measurement and spatial skills
6. Apply statistical analysis skills
7. Analyze critical data to guide work activities
8. Utilize scheduling techniques to ensure that jobs are completed by the state due date
9. Demonstrate knowledge of the economy and how it functions as a whole
10. Demonstrate knowledge of the economy as a framework within which decisions are made by individuals and groups
B. Apply Technology
1. Demonstrate technological literacy
2. Access/transmit information using electronic communication systems
3. Demonstrate computer literacy
4. Use database software in work-related situations
5. Use word-processing software in work-related situations
C. Communicate Effectively
1. Apply basic communication skills
2. Apply oral communication skills
3. Apply written communication skills
4. Apply technical writing skills
5. Apply listening skills
6. Apply demonstration/presentation skills
7. Apply graphic communication skills
8. Apply artistic communication skills
9. Convey information through multimedia presentations
10. Create graphs and charts
11. Build interpersonal relationships
D. Manage Resources (Health and Environmental)
1. Apply self-management processes in the workplace
2. Use reference materials to obtain information appropriate to a given problem, topic or situation
3. Maintain/promote wellness
4. Determine the impact of government regulations and business/industry procedures on the performance of particular work functions
5. Implement safety procedures and programs

6. Support the provision of first aid in accordance with company policy and procedures
7. Manage work and family responsibilities for the well-being of self and others
8. Determine resources needed to produce a given product or provide a given service
9. Ensure the quality of products and services
10. Utilize an inventory control system to track supplies, materials, and equipment
11. Make informed financial decisions

E. Work Effectively and Responsibility
   1. Demonstrate leadership
   2. Contribute to team work
   3. Demonstrate responsibility for learning
   4. Choose ethical courses of action in all work assignments and personal interactions
   5. Demonstrate the work ethic
   6. Comply with the confidentiality requirements ofworkplace policies and procedures
   7. Apply appropriate strategies for dealing with the differences associated with diversity (e.g., racial, ethnic, gender, educational, personality, social, and age)

F. Demonstrate Employability and Manage a Career
   1. Identify how personal interests, abilities, and skills relate to choosing a Career and Workforce Development Investigate career options
   2. Chart career using career-planning skills
   3. Demonstrate skills needed to enter or reenter the workforce
   4. Demonstrate job-keeping skills
   5. Upgrade career skills
   6. Explore opportunities to create a business

G. Demonstrate an Understanding of Academic Connections to Core Pre-Tech Foundational Competencies (CPFC)

Crosswalk of Academic Connections to Core Pre-Tech Foundation Competencies
   Crosswalk attached

FOUNDATIONAL COMPETENCY - TO I1NCLUDE:

H. Demonstrate an understanding of a chosen career cluster that the individual is preparing to enter
   1. Workplace behaviors, skills and personal and professional development
         Work Place Behaviors
         Maintain an acceptable attendance record.
         Work well independently, showing pride and interest in work assignments.
         Demonstrate aptitude for creativity.
         Plan and perform work accurately, neatly and efficiently.
         Show personal growth as a worker, evaluating own work.
         Follow directions from supervisors and are willing to ask questions for clarification.
         Develop good oral and written communication skills.
         Cooperate with co-workers and supervisors.
         Demonstrate teamwork as a contributing team member.
         Demonstrates positive attitude toward work.
   2. Identify common occupations found within the career cluster
         Develop personal career goals.
   3. A school to work experience in the chosen career cluster

I. Demonstrate Technical Skills within a Chosen Career Cluster – (These will be developed with center partners and will be based on the Career Cluster Program Competencies.)

BASIC CONSTRUCTION SKILLS

1. Orientation to the Trade
     Describe the history of the carpentry trade.
     Identify the responsibilities of a person working in the construction industry.
     State the personal characteristics of a professional.
     Explain the importance of safety in the construction industry.
2. Safety
     Describe how to avoid job-site accidents.
     Appreciate the importance of following all safety rules and company safety policies.
     Explain the importance of reporting all on-the-job injuries, accidents, and near misses.
     Recognize and explain personal protective equipment uses.
     Inspect and care for various types of personal protective equipment.
3. Math
     Add, subtract, multiply, and divide whole numbers, with and without a calculator.
     Add, subtract, multiply, and divide decimals, with and without a calculator.
     Convert decimals to percents and percents to decimals.
     Convert fractions to decimals and decimals to fractions.
4. Hand Tools
     Safely use these basic hand tools.
     Have an awareness of basic maintenance procedures on these hand tools.
5. Power Tools
     Identify commonly used power tools of the construction trade.
     Explain the procedures to properly maintain these power tools.
6. Blueprints
     Identify and recognize basic blueprint terms and symbols.
     Relate information on prints to real parts and locations.
7. Wood Materials and Fastening
     Explain the terms commonly used in discussing wood and lumber.
     State the uses of various types of hardwoods and softwoods.
     Identify various types of imperfections that are found in lumber.
     Explain how lumber is graded.
     Interpret grade markings on lumber and plywood.
     Identify the uses of and safety precautions associated with pressure-treated lumber.
     Describe the proper method of caring for limber and wood building materials at the job site.
     State the uses of various types of engineered lumber.
     Calculate the quantities of lumber and wood products using industry-standards methods.
     List the basic nail and staple types and their uses.
     List the basic types of screws and their uses.
     Identify the different types of anchors and their uses.
     Describe the common types of adhesives used in construction work and explain their uses.

Learning Opportunities/Units:
Careers and Employment Skills in Architecture and Building Trades
Developing a Portfolio
Safety, Ethics, and Government Regulations
Math for Carpenters
Blueprint Reading
Site Layout
Floor Systems

Wall Framing
Roof Framing
Windows and Doors
Joining Pipe — Plastic and Copper
Electrical Theory
Electrical Wiring (Residential)

Instructional Materials and Resources Used:

Textbook/Resources	Publisher	Copyright
Teacher Developed Materials	Instructor	Current

Internet:
Web sites are used for research on careers.

Assessment and Grading Policy:
Numerical – based on 100 % scale where:

Assignment – projects, designs, presentations, etc.	40%
Portfolio	20%
Tests and quizzes	20%
Participation	20%

Course Expectations:
Complete all assigned work on time, neatly, accurately and professionally. Participate in class discussions, problems, duties, assignments, presentation, etc. Develop and maintain a course portfolio of all material including your notes, handouts, projects, assignments, etc. Maintain a passing average or greater on all assignments, projects, presentations, etc.

Instructor Expectations:
You are expected to act in a professional manner. We all must treat everyone with respect and keep a positive attitude. Violations of the code of conduct are not expected, but if they occur they will be dealt with individually. Extra help will be made available whenever possible. If you need extra help from me or more time in the classroom to use the tools and equipment, please don't hesitate to ask and please don't procrastinate.

Family Involvement or Community Services:
Discussions about the importance and impact of business ethics, academic honest, college choices, community events and open houses and job opportunities all enhance classroom activities.